Bacterial flora associated with the digestive tract of gilthead seabreams reared in floating cages in the Alghero Bay (North western Sardinia, Italy): preliminary results

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ABSTRACT

The intestinal microflora of fish is highly variable and can depend on many factors such as species, developmental stage, environmental conditions, trophic habits and, in the case of farmed fish, on rearing conditions (*i.e.*, fish density, quality of rearing water, dietary regimen, etc.). Different studies showed that Gram-negative bacteria such as Enterobacteriaceae and the *Vibrio-Aeromonas* group dominate the fish intestine. However, since few studies have been carried out on the bacterial flora of intensively reared marine teleosts, the aim of the present study was to investigate the microflora associated with the digestive tract of *Sparus aurata* specimens reared in floating cages. A total of 30 gilthead seabreams (mean weight 324.9±61.4 g) starved for 48 hours was sampled in autumn 2008 from a fish farming facility located in the Alghero Bay (North western Sardinia, Italy: Lat 40°33'43.9"N, Long 8°16'09.0"E). The intestine between the pyloric caeca and the anus of each specimen was removed and analysed by means of conventional bacteriological techniques using five culture media: Plate Count Agar (PCA), Nutrient Agar (NA), Violet Red Bile Glucose Agar (VRBGA), Violet Red Bile Agar Mug (VRBA-MUG), and de Man-Rogosa-Sharpe (MRS) agar. Total viable counts on PCA and NA were quite similar, showing mean values of 126.7±109.0 colony forming units (cfu) per gram intestinal tissue (between 10.0 and 495.0 cfu/g) and 108.0±101.6 cfu/g (from nil to 350.0 cfu/g), respectively. The mean number of Enterobacteriaceae determined on VRBGA proved to be 46.3±42.8 cfu/g (from nil to 150 cfu/g) and the VRBA-MUG mean count were 30.4±29.3 cfu/g (from nil to 95.0 cfu/g). No bacterial colonies were instead detected using the MRS medium. These results, although preliminary, evidenced a relative low number of bacteria associated with the digestive tract of the fish examined, thus indicating good hygienic conditions inside the cages as well as a suitable rearing density and a balanced diet for the seabreams.